



Agronomic and Demographic Discovery of Illinois Industrial Hemp Production

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Introduction

Industrial hemp production was legalized in Illinois in 2019. Prior to this, industrial hemp was illegal to produce since the 1940's. The lack of modern research and data regarding industrial hemp production makes growing industrial hemp challenging for Illinois farmers, and only certain producers are willing to take that risk. This research will look at the demographic information of farmers who chose to produce in 2019 and analyze the affect of various fertilizer and seeding rates on both fiber quality and yield.

What is Industrial Hemp?

Cannabis sativa L. (industrial hemp) is differentiated from marijuana by tetrahydrocannabinol (THC) content. In the state of Illinois, the legal definition of industrial hemp is *cannabis sativa* L. with less than 0.3% Δ^9 THC content at harvest. Industrial hemp primarily produces three types of products: fiber, grain, or medicinal. Historically, Illinois produced primarily fiber hemp, but since production was legalized again in 2019, Illinois producers grew hemp for medicinal purposes.



Research Question 1

Fiber Production Agronomics

Industrial hemp research in the United States is limited at this time due to over 70 years of government restrictions.

- Fiber production seeding rate recommendations range from 40 to 70 lbs/acre in North America
- Minimal research has been done locally on the effects of seeding rate on fiber quality and yield
- Little is known regarding fertility for fiber production in Illinois due to a lack of current research
- Lack of fertility research can lead to over or under-applying nutrients, potentially affecting both fiber yield and the environment

Hemp Fiber Uses

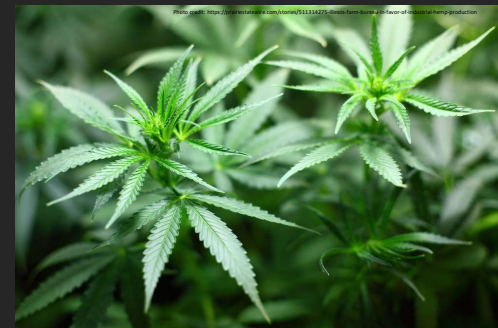
Industrial hemp has over 25,000 recognized end uses. Industrial hemp fiber is commonly separated into two primary raw products: hurd and fibers. Hemp hurd is the inner core of the fiber stalk, and common uses include animal bedding, aggregate in a concrete known as "hempcrete," and paper. The outer fiber, also referred to as bast fiber, can be used for building materials, biocomposites, and many other purposes. Bast fibers are known to have strong, durable properties and are often used in textile blends. Separating fiber and hurd requires two processes: retting fiber in the field and decortication. Retting occurs in the field after mowing down the fiber stalks when the connection between bast fibers and hurd begins to break down.



Research Question 2

Producer Demographics

In 2019, Illinois licensed over 600 hemp producers throughout the state. As of 2017, only 8% of Illinois agricultural producers were under the age of 34, 29% were women, and 99% identified as white. One purpose of this study is to identify the general demographics of Illinois industrial hemp farmers. This will help us to better understand the role of industrial hemp production in increasing diversity in agriculture. Due to the limited amount of local research available, hemp producers face a greater level of risk relative to other traditional crops in the area.



What is Next?

A second year of data from this experiment will be collected in Summer 2021, and a second survey will be conducted of Illinois hemp producers following completion of the 2020 growing season.